

MID TERM ASSIGNMENT

# Ontology & Epistemology

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## Research Methodology

Supervisor. Dr Farhan Ahmad

Scholar Ph.D. Aamir Cheema

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## Ontology & Epistemology:

### The Philosophical Layer of Research Methodology

#### Abstract

*Research Onion is part of a book written by Saunders a UK based professor for Business School. The author put forward the metaphor of undertaking a research similar to an onion. The theme emphasis on understanding the philosophical aspects of research like ontology, epistemology and axiology. This paper elaborates Saunder's idea and further add that Historicism should also be part of Research Onion.*

#### Introduction.

Research is an ongoing process and is undertaken consciously or unconsciously by human beings almost around the clock and as such decisions are undertaken by them. The shopping in Sadar bazar Peshawar, where a lady moves around to many shops and compares prices and quality of items before buying them ; is a research by itself where prices and quality and other factors have been evaluated by her before a final purchase. However in a scholarly world, especially in universities, the research has a specific aim; to fulfil the requirement of the university in achieving the academic degree.

In the academic world, the Research Methodology<sup>1</sup> is often confronted as one of the basic and yet most misunderstood and confused aspect. A researcher, at times is undertaking the research in right direction yet is at loss in explaining the dynamics of the process. One major reason is the language barrier as majority of the terms and infact the entire pattern is based upon Greek philosophy and this further aggravates the issue for Pakistan students more so for those who already are having English as their third language.

**Aim.** This paper as part of mid-term assignment, focus on explaining the Saunder's Research Onion<sup>2</sup> , philosophical assumptions.

#### Part I- Saunder's Research Onion

Coming to the main topic, Saunder in 1988 wrote a book in which he tried to explain the ways , as how to conduct the research itself .The book is written for the business school and as such has the economics as the core of it. Chapter IV of the book deals with research onion and it gives following objectives.

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<sup>1</sup> Ian Jonker, Bartjan Pennnink *The Essence of Research Methodology* (London: Springer, 2010) , preface.

<sup>2</sup> Mark Saunders, Philip Lewis, Adrian Thornbill *Research Methods for Business Students* ( Essex: Pearson, 2010).

*Define ontology, epistemology and axiology, and explain their relevance to business research; reflect on your own epistemological, ontological and axiological stance. Understand the main research paradigms that are significant for business research. Explain the relevance for business research of philosophical positions, such as positivism, critical realism, interpretivism, postmodernism and pragmatism. Reflect on and articulate your own philosophical position in relation to your research. Distinguish between deductive, inductive, abductive and retroductive approaches to theory development<sup>3</sup>*

Saunders takes the example of Brexit referendum of June 2016 as the opening salvo, he highlights that people have voted differently and these people have their own beliefs to vote for, either to be part of European Union or be out of it. Saunders thus highlights that, people have their own individual thinking and this must be kept in mind while understanding the research. Therefore the basic parameter is reflexivity (understanding and questioning own ideas and beliefs).

### **Layers of Research Onion.**

- **First Layer.... Philosophy(ontology-Epistemology-Axiology)**
- Second Layer....Research Approaches (Deductive/Inductive)
- Third Layer.... Research Strategy (experimental/Survey/Archival/Action Research)
- Fourth Layer..... Methodology ( Qualitative/Quantitative)
- Fifth Layer.... Time Frame (Cross Sectional/Longitudinal)
- Sixth Layer..... Techniques and Practices

### **First layer- Ontological Assumption.**

The origin of our world and its evolution is a matter of debate among all, without any clear, precise and decisive conclusion. There are varying ideas, theories, hypothesis that explains or tends to explain as how we evolve, why we are what we are, why there are differences among the people, our political and economic way of life, our perspective of gender and above all our fundamental concept of life and this planet earth. Broadly, the world is divided in two main ontological groups, one who believes in unseen and other who seek evidence for everything. Yet it is often observed that people even within a day, changes their ontological assumptions as and when the situation requires. *‘As a first approximation, ontology is the study of what there is...Many classical philosophical problems are*

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<sup>3</sup> Mark Saunder, Philip Lewis, Adrian Thornhill *Research Methods for Business Students* ( UK: Pearson ,2019), p-128.

*problems in ontology: the question whether or not there is a god, or the problem of the existence of universals, etc*'.<sup>4</sup>

There is a scientific way to explain reality, basing upon mathematics and physics that highlights and establishes laws governing the very existence and movement of our selves and our planet; this is known as natural science (physics). This knowledge has been gained through millennia. The Pyramids of Egypt are an empirical example of natural sciences, where 3000 BC the people of Egypt were able to understand the mathematics and as such able to move such heavy stones and made these pyramids. Unfortunately, we do not have any written accounts that explain how those Egyptians were able to gather this knowledge.

Our present day knowledge of past is based upon the Greek literature, where in 400 BC, the philosophers like Socrates, Plato and Aristotle apart from Pythagoras and Archimedes wrote extensively and their works have survived. It was Pythagoras<sup>5</sup> who found the geometrical solution in finding the area and length of an object, Archimedes famously said, 'give me a place to stand and I can lift the world', thereby highlighting the utility of mathematics in solving weight and fulcrum problem. Socrates stands out as founder of morality and ethics, of reasoning and arguments; Plato as the eye witness and narrator wrote 'Dialogues'.<sup>6</sup> Philosophy<sup>7</sup> took its birth in Greece, because writing of great philosophers has survived. The Greek philosophers were more keen especially the Socrates in understanding the interaction of human and this philosophy; of pondering over the origin and all that is around us gave birth to many philosophical school of thoughts.<sup>8</sup> The concept of democracy, republic, politics, war, justice, love, morality, ethics all took birth here. It must be highlighted that Greeks had their own gods, which usually remained at war among themselves and these gods remained a fundamental stone of Greek philosophy. These gods were the Ontological assumption of the Greeks including these philosophers. 'There really is a war among the gods'<sup>9</sup> The concept of good and bad as being liked and disliked by the gods or the goodness in being the act remained as a paramount argument in Western Philosophy.<sup>10</sup>

The conflict between Persia and Greece also gave birth to many philosophies of Greek world on human interaction, war, state and politics. Aristotle's ontological assumption

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<sup>4</sup> Hofweber, Thomas, "Logic and Ontology", *The Stanford Encyclopedia of Philosophy* (Spring 2021 Edition), Edward N. Zalta (ed.), forthcoming URL = <<https://plato.stanford.edu/archives/spr2021/entries/logic-ontology/>>.

<sup>5</sup> Britannica, The Editors of Encyclopaedia. "Pythagoras". Encyclopedia Britannica, 17 Dec. 2020, <https://www.britannica.com/biography/Pythagoras>. Accessed 7 March 2021.

<sup>6</sup> Plato *Five Dialogues, Euthyphro, Apology, Crito, Meno, Phaedo*, 2<sup>nd</sup> Ed. Translated by G. Grube (Indianapolis: Hackett, 2002).

<sup>7</sup> Philosophy, (from Greek, by way of Latin, *philosophia*, "love of wisdom") the rational, abstract, and methodical consideration of reality as a whole or of fundamental dimensions of human existence and experience.. Britannica, The Editors of Encyclopaedia. "Philosophy". Encyclopedia Britannica, 20 Aug. 2020, <https://www.britannica.com/topic/philosophy>. Accessed 8 March 2021.

<sup>8</sup> Socrates, died 399 BC, himself wrote nothing.

<sup>9</sup> Plato, *Euthyphro*, p-9

<sup>10</sup> David Baggett "The Euthyphro Dilemma" ,ed, Micheal Bruce, Steven Barbone *In Just the arguments, 100 of the most important arguments in western philosophy*. (London: Wiley-Blackwell, 2011),p-49.

about the very nature of state was, that it is creation of nature and as such man is a social animal<sup>11</sup>, Logic, was evolved and developed as a method of understanding reality and rationality. Arguments were defined in order to validate the reasoning. Fallacy as part of reasoning was highlighted. Aristotle stressed on reducing a whole into parts in order to understand the whole. First Philosophy or the very nature of the thing under consideration was his main concern,<sup>12</sup> which is what is termed as Ontology at present. Greeks also stressed on the *Causation*, to them, a thing or an event must have a premise or the causation. In the same time period (500 BC) another philosophy emerged from India in the form of Buddha, who out rightly denounced violence. Buddha thus emerged as one of the pioneer in 'Inductive Reasoning'; that is to undergo the entire process and only then reach a conclusion. Asoka the Emperor after going through wars developed an ontological assumption, that war breeds violence and human life is an important thing and as such not to be wasted on acquiring power: he renounced war and violence.

**Ontology of Divinity.** Apart from these Greek and Indus Civilisations, another civilisation emerged on the scene in the Mediterranean based upon divinity, in which instead of many gods the focus was on One with many names. The Jews of Egypt and their exodus and subsequent literature of Torah explained the origin of the world from another concept. The idea of heaven, of angels, of man and woman and their ultimate exclusion from the heaven along with the Satan. Later Jesus of Nazareth and his crucifixion by the Romans added another dimension to the studies and philosophy called as Theology. In the same breath, almost 550 years after Jesus, another man who is destined to be the last prophet of God (pbuh) Muhammad gave a final philosophy and way of life to the humanity. From 640 AD onwards the world started clashing and fighting basing upon the ontological assumptions and interpretation of the divinity. Saint Anslem of Canterbury (1033-1109) gave his famous Ontological Argument, 'God, that than which nothing greater can be thought'.<sup>13</sup> The ontological assumption of *Determinism* or *Kismet* is the basic brick of this assumption. Thus, every action, event is pre-determined, written as kismet of an individual or the community. Life has to be followed and adhered to the divine laws, in case if anything goes wrong, then the causes are nothing but deviation of those laws. Obviously it puts an end to the *Imagination* and *Prediction*.

Ibn Khaldun (1332-1406) in his *Muqaddimah*<sup>14</sup> (1377) highlighted and put forward the hypothesis of *Asabiyyah*, thereby clan and blood lineage being the source of nation's rise to power.

**Scientific Ontology.** The breakthrough came in 15<sup>th</sup> Century when Copernicus published his famous work<sup>15</sup> on the planetary motion, Copernicus through observation stated

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<sup>11</sup> Aristotle *Politics*, Book I.

<sup>12</sup> Aristotle *Metaphysics* Book 4.

<sup>13</sup> Sara Uckelman "The Ontological Argument", ed, Micheal Bruce, Steven Barbone *In Just the arguments, 100 of the most important arguments in western philosophy*. p-25-26.

<sup>14</sup> Ibn Khaldun *Muqaddimah An Introduction to History*, translated by franz Rosenthal (Princeton University Press: 1958)

<sup>15</sup> Nicolaus Copernicus *Six Books concerning the revolutions of the heavenly Oribis*. Poland: 1543.

that it is the Sun which is the centre of our galaxy and not the earth. Galileo<sup>16</sup>, Johannes Kepler (1571-1630), Isaac Newton (1642-1726) and others were able to demonstrate that our ontological assumptions or beliefs are not entirely correct, earth is in fact revolving around sun, there are planets which are following a mathematical pattern; this shattered the entire system of knowledge based upon theology. Later on the heels of these discoveries an age of enlightenment initiated in which focus was on the mathematical understanding of the world, as Galileo stated 'Book of nature was written in mathematics' <sup>17</sup>Emperor Akbar (reigned 1556-1605) conducted the perhaps the very first experiment on language, childhood knowledge acquisition, Akbar had two varied concepts, one was that children have a prior knowledge of learning. In order to test the hypothesis, he put over 300 children in a palace with instructions, not to speak to the new born children, after three years he found the hypothesis null and void.<sup>18</sup>

In this period men (yes there have been men only) like Thomas Hobbes (1588-1679), John Locke (1632-1704), Wilhelm Hegel (1770-1831) Immanuel Kant (1724-1804) Jean, Rousseau (1712-1778) to name a few put forward their ideas of understanding the human society. The debate is on the nature of State, Liberty, Free Will. Modern statehood also took birth at Vienna in 1816, the French Revolution of 1799 and subsequent Napoleonic Wars had set in motion the imagination of finding laws and solutions, above all prediction of social events.

## Clash of Ontology; Natural and Social Sciences

At this moment in time, 1800 AD, a French philosopher Auguste Comte (1798-1857) came up with the idea of **Positivism (positive philosophy)**, philosophy or understanding of human society should also be made scientific in order to make it more useful, and this is how Social Science' **Modernism**; took birth. Comte classified the sciences and gave three stage laws of scientific development or ontological assumptions. In his voluminous works on <sup>19</sup> Positive Philosophy, Comte stresses on *Empiricism*, that is to use the five senses and data being in the form of a scientific language.

From 1900 AD onwards a great debate has been initiated in which the very idea of understanding human politics and life based upon mathematical configuration in order to derive and find laws similar to natural science took birth and this debate is still ongoing. In between it has given birth to many philosophical branches, who argues that it is not justified

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<sup>16</sup> Galileo Galilei 1564-1642.

<sup>17</sup> Helden, Albert Van. "Galileo". Encyclopedia Britannica, 12 Feb. 2021, <https://www.britannica.com/biography/Galileo-Galilei>. Accessed 8 March 2021.

<sup>18</sup> Max Muller *The Science of Language* (London: Logman, 1899), p-481

<sup>19</sup> Comte's most important works are (1) the *Course on Positive Philosophy* (1830-1842, six volumes, translated and condensed by Harriet Martineau as *The Positive Philosophy of Auguste Comte*); (2) the *System of Positive Polity, or Treatise on Sociology, Instituting the Religion of Humanity*, (1851-1854, four volumes); and (3) the *Early Writings* (1820-1829). <https://plato.stanford.edu/entries/comte/#LawThrSta>

or they prove that human cannot be treated as physical objects because humans think. Adam Smith<sup>20</sup> (1723-1790) '**Capitalism**', Karl Marx (1810-1872) '**Marxist**'<sup>21</sup> stands out among these as they and his philosophy of treating the human evolution as a form of economic struggle rather than anything else has influenced the mankind more than any other idea in last two centuries. Charles Darwin came up with his hypothesis of our evolution from animals, shattered the very ontological foundations.

At the turn of last century, Einstein with his *Theory of Relativity* and not to overlook the physicist like Alexander Fleming *Penicillin* and Marie Curie (1857-1934) She is the first prominent scientific woman among the written history, she is the first woman to win Nobel Prize twice in two different fields. **Feminism** as a philosophy emerged or took a strong roots in the last century mainly due to the WWI, which required conservative societies to open up for the women.

Two great wars of first half of last century brought the stark reality that our way of life instead of improving has deteriorated beyond repair, the mass killing of human for few miles of territory, invention of new weapons to kill more and more humans defy the very basic fundamental of our life. Thus two schools of thoughts emerges, one which regards itself as idealist, they believe in the peace and wellbeing of humans and have a conviction that man by nature is good. Other school of thought considers that mankind by nature is selfish and no good can be expected from it; they are known as realist. Vladimir Lenin<sup>22</sup> has the ontological assumption of war being a result of **Imperialism**. Another philosopher, Max Weber wrote extensively on the sociology and its methodology.<sup>23</sup> Weber coined the term Bureaucracy, the structure of power, objectivity in social science. He put forward the Hypothesis, that Protestant by virtue of their faith are more hard working.

In the aftermath of these two mass acts of killing human beings, different philosophies emerged, yet the fundamental issue remained the same, as how to understand the nature of human kind. **Critical Theory**<sup>24</sup> emerged in this background. The philosophers at Vienna and Frankfurt Universities questioned the very history and the existing system.

America emerged as the new world in last century, by virtue of its size and the way of life, it soon overawed the European school of thoughts. American philosophy is much more based upon scientific discoveries. As in the aftereffects of two wars, the focus of scholarly world also drifted towards the America and their teaching and ideas became the yardstick. The research methodology also took a new shape in which it became more useful for the people. Researches were carried out in factories to understand how to improve the output

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<sup>20</sup> Adam Smith *An inquiry into the nature and causes of The wealth of Nations*, 1776 (Princeton University Press: 2005)

<sup>21</sup> Karl Marx, Friedrich Engels *Manifesto of the Communist Party*-1848. Translated by Samuel Moore (London: Longman, 1910).

<sup>22</sup> Vladimir Lenin *Imperialism the Highest stage of Capitalism*, first published in 1916. Communist Press

<sup>23</sup> Max Weber *The Methodology of the Social Sciences*. Translated by Edwards Shils, Henry Finch. (Illinois: Free Press, 1949).

<sup>24</sup> Max Horkheimer, Theodore Adorno *Dialectic of Enlightenment, philosophical fragments*. Translated by Edmund Jephcott (Stanford University Press: 2002). Originally published as six volumes between 1946-1950.

(Hawthorne effect)<sup>25</sup> to understand the racial difference, the psyche of violence and above all how to counter the Communist philosophy of Karl Marx. American way of life is anchored in the teachings of Adam Smith and his idea of free market trade. In nutshell economics became the main theme.

In this period , people like Bertrand Russel, Karl Popper, Thomas Kuhn, Hans Morgenthau, John Nash influenced the scholars with their interpretation of the world, yet the theme remained the same, as how to understand the human society and how important is the scientific data in this understanding.

Ontology, the philosophy the ‘ acquiring wisdom’ takes its origin from Greek, it was Aristotle who first raised the ‘First Principle’ and later in 16<sup>th</sup> Century the word Ontology was used in English. In the original etymology, it concerned with the reality ,the understanding of the world and our relation to it. In later years it became more associated with the idea of God and the man. However in present and in Saunder’s connotation, it is understanding the very reality of the things under research.<sup>26</sup> For instance, what is a university ? or the idea of marriage, democracy, state,, terrorism, even minor objects like chair, book and so on. Taking the example of onion itself, an ontological assumption is that it is vegetable, but it can be fruit, an ornament, a herb. Thus own ontological assumptions are important as they influenced the later progress in the research. In modern era , ontology is synonym with computational knowledge, which is often summarised as , explicit specifications of conceptualisations. Ontology the philosophical study of being in general, or of what applies neutrally to everything that is real. It was called “first philosophy”.<sup>27</sup>

## Epistemology- Philosophy of Knowledge

What all has been written above, regarding the Socrates speech in his defence at Athens, Plato’s *Republic*, Aristotle’s *Politics*, Ibn Khaldun’s *Muqadimmah*, and so on, what is the source of this knowledge ?, how this knowledge has been passed to us ?, is there more knowledge than what we possess ?, how we gain knowledge, what is the authenticity of the data?

. The branch of philosophy which questions on the acquisition of knowledge itself. How the knowledge is to be acquired and what is the authenticity of the knowledge that has been

<sup>25</sup> Hawthorne Effect was studies undertaken at Western Power plants, to understand workplace envoinment and its impact on output. Between 1928-1932 in USA. <https://www.economist.com/news/2008/11/03/the-hawthorne-effect>

<sup>26</sup> S. Staab and R. Studer (eds.), *Handbook on Ontologies*, International Handbooks on Information Systems, DOI 10.1007/978-3-540-92673-3,

<sup>27</sup> Simons, Peter+M.. "Ontology". Encyclopedia Britannica, 19 Jan. 2015, <https://www.britannica.com/topic/ontology-metaphysics>. Accessed 18 February 2021.



passed to us.<sup>28</sup> There are senses in human being like sense of vision, feeling, hearing; epistemological assumptions questions all this. A traveller in desert is deceived by mirage, or the reflection or refraction in a glass are all examples of epistemology. However in our present time, we have internet and social media not to overlook the radio, television, films, literature, thus we have to anchor our knowledge on these in order to acquire knowledge. Thus, as a researcher, our belief in government documents or primary sources is our epistemological assumption that they are more reliable than Wikipedia. The term is derived from the Greek *epistēmē* ("knowledge") and *logos* ("reason"), and accordingly the field is sometimes referred to as the theory of knowledge.<sup>29</sup> In Plato's *Meno*<sup>30</sup>, Socrates has the ontological assumption about the epistemology as that being part of the soul and as soul is immortal thus a human in fact recollects the knowledge. To Socrates, the soul of a human does not die and takes rebirth but retaining the same old knowledge acquired in previous life. However it must be kept in mind that Greeks had many gods thus their assumption about knowledge is much different from the Muslims, who believe in one God and attribute all knowledge to him. Christians on the other hand attributes knowledge to the trinity.

### Axiology

Axiology is morality, the concept of goodness, as Socrates in his dialogue with Euthyphron asks what is good, is it good because gods like it or is it good by itself. In research, axiology emphasizes on the morality of the subjects and the researchers. 'Axiology, (from Greek *axios*, "worthy"; *logos*, "science"), also called Theory of Value, the philosophical study of goodness, or value, in the widest sense of these terms.'<sup>31</sup>

In the first layer, the researcher has outlined his three basic parameters in terms of philosophy, what he considers about the reality of the object under research and gives its operational definition, say of marriage. Then in same breath, the knowledge (epistemology) as what is the opinion of researcher about the knowledge, how he regards say oral folk lore and then the axiology or the values of the things, the morality, how far a researcher can go to expand morality and above all what he understands as morality and ethics

### Etymology- Hypothesis, Theory, Law

Social Science, natural science and biological science have a common research philosophy, all are conducted by human beings and aim is to understand a phenomena or satisfy a curiosity based upon observation. One of the major problem being faced at present at

<sup>28</sup> Robert Audi. *Epistemology a contemporary introduction to the theory of knowledge*. 3<sup>rd</sup> ed (London: Routledge, 2011), pp-2-26.

<sup>29</sup> Stroll, Avrum and Martinich, A.P.. "Epistemology". Encyclopedia Britannica, 11 Feb. 2021, <https://www.britannica.com/topic/epistemology>. Accessed 18 February 2021. Also see Alex Rosenberg *Philosophy of Science a contemporary introduction*, 2<sup>nd</sup> ed. (London: Routledge, 2005)

<sup>30</sup> Plato *Five Dialogues, Meno*, pp-70-77.

<sup>31</sup> Britannica, The Editors of Encyclopaedia. "Axiology". Encyclopedia Britannica, 10 Jun. 2015, <https://www.britannica.com/topic/axiology>. Accessed 18 February 2021.

least in Pakistan is the inter-use of these three terms interminably in all three branches of science; resultantly the connotation is different in all three.

In classical science, an observation leads to thought provoking, brainstorming, literature review and then forming a conjecture. A conjecture is a logical statement which is rational at least to the scientist. To prove his conjecture, which when formally constructed becomes a hypothesis, and after repeated tests of the hypothesis it will become obvious that it validates but in under peculiar circumstances. For instance, in order to lift an object from ground, the aerodynamic shape has to be given a certain angle of incidence and only then it will lift off the ground provided all atmospheric qualities remain identical; and these hypothesis then leads to a Theory. In *Theory of Flight*, the hypothesis was always there that man can fly but it was only Wright Brother's who observe the effects of warm air as a bicycle mechanics. They then designed the aircraft Flyer and made an inaugural flight of twelve seconds; now the hypothesis has become a theory and is still valid with improvements being carried throughout the last one century. The further models of aircraft were made as a further testing of the theory of flight and resultantly new knowledge is being added. However unlike Newton's Law of Inertia, there is no such Laws of Flight; although the very aerodynamics itself are subjected to certain laws. The reason being that, with minor variation in wind speed, direction, temperature, density, atmospheric pressure the results vary thus no laws.

Hypothesis is a Greek word conveying 'plot of a novel'. Theory is again a Greek word stressing 'to think' but Plato used it while watching men in action at gymnasium. Thus Hypothesis and Theory are interconnected. In mathematics there are theories because mathematically a theory can be built or constructed from hypothesis. In social science, creating hypothesis is rather convenient and requires mental thinking in order to present a rational solution. *Scientific hypothesis, an idea that proposes a tentative explanation about a phenomenon or a narrow set of phenomena observed in the natural world. The two primary features of a scientific hypothesis are falsifiability and testability, which are reflected in an "If...then" statement.*<sup>32</sup>

The importance of a Hypothesis being able to be falsified was put across by Karl Popper<sup>33</sup>

Law, we come across it everyday, custom law, military law, and so on. The word Law connotes something which is binding, permanent, forever, without any exception. Thus in Jewish community, pork meat is absolutely forbidden it is a Kosher Law; no exception at all. In Physics we have laws of gravitation, Boyle's Law, but we do not have any law in social science. Even use of word theory is full of fraught, among the animals we have theories, for the reason that they are observable and can be put into test in a model. A rat can be put into a trap for years to observe the behaviour but taking the same example and applying it on human is always a debateable aspect. The inmates in a prison provides an almost ideal circumstances to observe the behaviour of humans under closed, observable,

<sup>32</sup> Rogers, Kara. "Scientific hypothesis". Encyclopedia Britannica, 5 Sep. 2018, <https://www.britannica.com/science/scientific-hypothesis>. Accessed 8 March 2021.

<sup>33</sup> Karl Popper *Science as Falsification*, published in 1963.

similar environments. Thus a hypothesis of whether prisoners loose their morality or it is increased can be tested in a prison. Theoretically the same model of prison is employed in social science where, entire region or countries are taken as one unit , as they are living and working under same envoinment. Therefore among 190 odd countries , one can construct a hypothesis of their being less criminal, educated, hospitable etc can be then attributed to certain variables; yet they remains hypothesis and seldom turns into theory.

## Conclusion

Thomas Kuhn , highlighted the role of history in his famous essay, '*History, if viewed as a repository for more than anecdote or chronology could produce a decisive transformation in the image of science by which we are now possessed.*'<sup>34</sup> Kenneth Waltz in his *Theories of International Relations*<sup>35</sup>, have written chapters on theory and yet fails to explain it. In his opinion, theories are good, bad, strong, weak and so on. But these adjectives cannot be employed in natural sciences. The contradiction of the theories creates differences in the meanings of terms across theories'.<sup>36</sup>

The entire histories of human intellect are infact a search for knowledge, validity of the reality or knowledge, yet at present they are all wrapped in an enigma. We, humans have progressed in Scientific World by use of observation, reasoning, hypothesising, theorising and forming laws; or in other words we can predict. In Social Science , prediction is absent, we cannot predict revolutions among nations but basing upon history we can hypothesised

The entire debate comes to the two fundamental schools of thoughts. American scholars use the word Theory more frequently and without any justification, infact they have taken out the word Hypothesis from their research work, their thesis starts with theory and ends with theory, but what is theory that is still an unresolved matter.

Importantly, a researcher must highlight his or her ontological assumptions, beware in accepting any knowledge as valid and real, be concise and precise in interpretation or etymological assumption on the meanings of the words.

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<sup>34</sup> Thomas Kuhn *The Structure of Scientific Revolutions* 4<sup>th</sup> Ed. (University of Chicago Press:2012)p-16.

<sup>35</sup> Kenneth Waltz *Theory of International Politics*- 1979, (University of California Press: 1978).

<sup>36</sup> Kenneth Waltz, *Theory*, p-11.

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